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Application No: 10584960   Version No: 2.0

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<110>   The University of North Carolina
         Threadgill, David W
         Lee, Daekee

<120>   MODULATION OF EPIDERMAL GROWTH FACTOR HETERODIMER ACTIVITY

<130>   421/99 PCT/US

<140>   10584960
<141>   2009-06-12

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<151>   2004-02-17

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aggccacctc gtcggcgtcc gcccgagtcc ccgcctcgcc gccaacgcca caaccaccgc   180

gcacggcccc ctgactccgt ccagtattga tcgggagagc cggagcgagc tcttcgggga   240

gcagcg atg cga ccc tcc ggg acg gcc ggg gca gcg ctc ctg gcg ctg   288
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ctg gct gcg ctc tgc ccg gcg agt cgg gct ctg gag gaa aag aaa gtt   336
Leu Ala Ala Leu Cys Pro Ala Ser Arg Ala Leu Glu Glu Lys Lys Val
15   20   25   30

tgc caa ggc acg agt aac aag ctc acg cag ttg ggc act ttt gaa gat   384
Cys Gln Gly Thr Ser Asn Lys Leu Thr Gln Leu Gly Thr Phe Glu Asp
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cat ttt ctc agc ctc cag agg atg ttc aat aac tgt gag gtg gtc ctt   432
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tta aag acc atc cag gag gtg gct ggt tat gtc ctc att gcc ctc aac          528
Leu Lys Thr Ile Gln Glu Val Ala Gly Tyr Val Leu Ile Ala Leu Asn
        80                  85                  90

aca gtg gag cga att cct ttg gaa aac ctg cag atc atc aga gga aat          576
Thr Val Glu Arg Ile Pro Leu Glu Asn Leu Gln Ile Ile Arg Gly Asn
95                  100                 105                 110

atg tac tac gaa aat tcc tat gcc tta gca gtc tta tct aac tat gat          624
Met Tyr Tyr Glu Asn Ser Tyr Ala Leu Ala Val Leu Ser Asn Tyr Asp
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gca aat aaa acc gga ctg aag gag ctg ccc atg aga aat tta cag gaa          672
Ala Asn Lys Thr Gly Leu Lys Glu Leu Pro Met Arg Asn Leu Gln Glu
                130                 135                 140

atc ctg cat ggc gcc gtg cgg ttc agc aac aac cct gcc ctg tgc aac          720
Ile Leu His Gly Ala Val Arg Phe Ser Asn Asn Pro Ala Leu Cys Asn
        145                 150                 155

gtg gag agc atc cag tgg cgg gac ata gtc agc agt gac ttt ctc agc          768
Val Glu Ser Ile Gln Trp Arg Asp Ile Val Ser Ser Asp Phe Leu Ser
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aac atg tcg atg gac ttc cag aac cac ctg ggc agc tgc caa aag tgt          816
Asn Met Ser Met Asp Phe Gln Asn His Leu Gly Ser Cys Gln Lys Cys
175                 180                 185                 190

gat cca agc tgt ccc aat ggg agc tgc tgg ggt gca gga gag gag aac          864
Asp Pro Ser Cys Pro Asn Gly Ser Cys Trp Gly Ala Gly Glu Glu Asn
                195                 200                 205

tgc cag aaa ctg acc aaa atc atc tgt gcc cag cag tgc tcc ggg cgc          912
Cys Gln Lys Leu Thr Lys Ile Ile Cys Ala Gln Gln Cys Ser Gly Arg
                210                 215                 220

tgc cgt ggc aag tcc ccc agt gac tgc tgc cac aac cag tgt gct gca          960
Cys Arg Gly Lys Ser Pro Ser Asp Cys Cys His Asn Gln Cys Ala Ala
                225                 230                 235

ggc tgc aca ggc ccc cgg gag agc gac tgc ctg gtc tgc cgc aaa ttc         1008
Gly Cys Thr Gly Pro Arg Glu Ser Asp Cys Leu Val Cys Arg Lys Phe
        240                 245                 250

cga gac gaa gcc acg tgc aag gac acc tgc ccc cca ctc atg ctc tac         1056
Arg Asp Glu Ala Thr Cys Lys Asp Thr Cys Pro Pro Leu Met Leu Tyr
255                 260                 265                 270

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Asp His Gly Ser Cys Val Arg Ala Cys Gly Ala Asp Ser Tyr Glu Met
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    320             325             330

aaa gtg tgt aac gga ata ggt att ggt gaa ttt aaa gac tca ctc tcc          1296
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ata aat gct acg aat att aaa cac ttc aaa aac tgc acc tcc atc agt          1344
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ggc gat ctc cac atc ctg ccg gtg gca ttt agg ggt gac tcc ttc aca          1392
Gly Asp Leu His Ile Leu Pro Val Ala Phe Arg Gly Asp Ser Phe Thr
            370             375             380

cat act cct cct ctg gat cca cag gaa ctg gat att ctg aaa acc gta          1440
His Thr Pro Pro Leu Asp Pro Gln Glu Leu Asp Ile Leu Lys Thr Val
        385             390             395

aag gaa atc aca ggg ttt ttg ctg att cag gct tgg cct gaa aac agg          1488
Lys Glu Ile Thr Gly Phe Leu Leu Ile Gln Ala Trp Pro Glu Asn Arg
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acg gac ctc cat gcc ttt gag aac cta gaa atc ata cgc ggc agg acc          1536
Thr Asp Leu His Ala Phe Glu Asn Leu Glu Ile Ile Arg Gly Arg Thr
415             420             425             430

aag caa cat ggt cag ttt tct ctt gca gtc gtc agc ctg aac ata aca          1584
Lys Gln His Gly Gln Phe Ser Leu Ala Val Val Ser Leu Asn Ile Thr
            435             440             445

tcc ttg gga tta cgc tcc ctc aag gag ata agt gat gga gat gtg ata          1632
Ser Leu Gly Leu Arg Ser Leu Lys Glu Ile Ser Asp Gly Asp Val Ile
            450             455             460

att tca gga aac aaa aat ttg tgc tat gca aat aca ata aac tgg aaa          1680
Ile Ser Gly Asn Lys Asn Leu Cys Tyr Ala Asn Thr Ile Asn Trp Lys
            465             470             475

aaa ctg ttt ggg acc tcc ggt cag aaa acc aaa att ata agc aac aga          1728
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    480             485             490

ggt gaa aac agc tgc aag gcc aca ggc cag gtc tgc cat gcc ttg tgc          1776
Gly Glu Asn Ser Cys Lys Ala Thr Gly Gln Val Cys His Ala Leu Cys
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Ser Pro Glu Gly Cys Trp Gly Pro Glu Pro Arg Asp Cys Val Ser Cys
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Arg Asn Val Ser Arg Gly Arg Glu Cys Val Asp Lys Cys Asn Leu Leu
              530               535               540


gag ggt gag cca agg gag ttt gtg gag aac tct gag tgc ata cag tgc      1920
Glu Gly Glu Pro Arg Glu Phe Val Glu Asn Ser Glu Cys Ile Gln Cys
              545               550               555


cac cca gag tgc ctg cct cag gcc atg aac atc acc tgc aca gga cgg      1968
His Pro Glu Cys Leu Pro Gln Ala Met Asn Ile Thr Cys Thr Gly Arg
    560               565               570


gga cca gac aac tgt atc cag tgt gcc cac tac att gac ggc ccc cac      2016
Gly Pro Asp Asn Cys Ile Gln Cys Ala His Tyr Ile Asp Gly Pro His
575               580               585               590


tgc gtc aag acc tgc ccg gca gga gtc atg gga gaa aac aac acc ctg      2064
Cys Val Lys Thr Cys Pro Ala Gly Val Met Gly Glu Asn Asn Thr Leu
              595               600               605


gtc tgg aag tac gca gac gcc ggc cat gtg tgc cac ctg tgc cat cca      2112
Val Trp Lys Tyr Ala Asp Ala Gly His Val Cys His Leu Cys His Pro
              610               615               620


aac tgc acc tac gga tgc act ggg cca ggt ctt gaa ggc tgt cca acg      2160
Asn Cys Thr Tyr Gly Cys Thr Gly Pro Gly Leu Glu Gly Cys Pro Thr
              625               630               635


aat ggg cct aag atc ccg tcc atc gcc act ggg atg gtg ggg gcc ctc      2208
Asn Gly Pro Lys Ile Pro Ser Ile Ala Thr Gly Met Val Gly Ala Leu
    640               645               650


ctc ttg ctg ctg gtg gtg gcc ctg ggg atc ggc ctc ttc atg cga agg      2256
Leu Leu Leu Leu Val Val Ala Leu Gly Ile Gly Leu Phe Met Arg Arg
655               660               665               670


cgc cac atc gtt cgg aag cgc acg ctg cgg agg ctg ctg cag gag agg      2304
Arg His Ile Val Arg Lys Arg Thr Leu Arg Arg Leu Leu Gln Glu Arg
              675               680               685


gag ctt gtg gag cct ctt aca ccc agt gga gaa gct ccc aac caa gct      2352
Glu Leu Val Glu Pro Leu Thr Pro Ser Gly Glu Ala Pro Asn Gln Ala
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ggc tcc ggt gcg ttc ggc acg gtg tat aag gga ctc tgg atc cca gaa      2448
Gly Ser Gly Ala Phe Gly Thr Val Tyr Lys Gly Leu Trp Ile Pro Glu
    720               725               730


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gcc agc gtg gac aac ccc cac gtg tgc cgc ctg ctg ggc atc tgc ctc    2592
Ala Ser Val Asp Asn Pro His Val Cys Arg Leu Leu Gly Ile Cys Leu
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acc tcc acc gtg cag ctc atc acg cag ctc atg ccc ttc ggc tgc ctc    2640
Thr Ser Thr Val Gln Leu Ile Thr Gln Leu Met Pro Phe Gly Cys Leu
        785             790             795

ctg gac tat gtc cgg gaa cac aaa gac aat att ggc tcc cag tac ctg    2688
Leu Asp Tyr Val Arg Glu His Lys Asp Asn Ile Gly Ser Gln Tyr Leu
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ctc aac tgg tgt gtg cag atc gca aag ggc atg aac tac ttg gag gac    2736
Leu Asn Trp Cys Val Gln Ile Ala Lys Gly Met Asn Tyr Leu Glu Asp
815             820             825             830

cgt cgc ttg gtg cac cgc gac ctg gca gcc agg aac gta ctg gtg aaa    2784
Arg Arg Leu Val His Arg Asp Leu Ala Ala Arg Asn Val Leu Val Lys
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aca ccg cag cat gtc aag atc aca gat ttt ggg ctg gcc aaa ctg ctg    2832
Thr Pro Gln His Val Lys Ile Thr Asp Phe Gly Leu Ala Lys Leu Leu
            850             855             860

ggt gcg gaa gag aaa gaa tac cat gca gaa gga ggc aaa gtg cct atc    2880
Gly Ala Glu Glu Lys Glu Tyr His Ala Glu Gly Gly Lys Val Pro Ile
        865             870             875

aag tgg atg gca ttg gaa tca att tta cac aga atc tat acc cac cag    2928
Lys Trp Met Ala Leu Glu Ser Ile Leu His Arg Ile Tyr Thr His Gln
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agt gat gtc tgg agc tac ggg gtg acc gtt tgg gag ttg atg acc ttt    2976
Ser Asp Val Trp Ser Tyr Gly Val Thr Val Trp Glu Leu Met Thr Phe
895             900             905             910

gga tcc aag cca tat gac gga atc cct gcc agc gag atc tcc tcc atc    3024
Gly Ser Lys Pro Tyr Asp Gly Ile Pro Ala Ser Glu Ile Ser Ser Ile
            915             920             925

ctg gag aaa gga gaa cgc ctc cct cag cca ccc ata tgt acc atc gat    3072
Leu Glu Lys Gly Glu Arg Leu Pro Gln Pro Pro Ile Cys Thr Ile Asp
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gtc tac atg atc atg gtc aag tgc tgg atg ata gac gca gat agt cgc    3120
Val Tyr Met Ile Met Val Lys Cys Trp Met Ile Asp Ala Asp Ser Arg
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cca aag ttc cgt gag ttg atc atc gaa ttc tcc aaa atg gcc cga gac    3168
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agt cct aca gac tcc aac ttc tac cgt gcc  ctg atg gat gaa gaa  gac       3264
Ser Pro Thr Asp Ser Asn Phe Tyr Arg Ala  Leu Met Asp Glu Glu  Asp
                995                 1000                1005

atg gac gac gtg  gtg gat gcc gac gag  tac ctc atc cca cag  cag          3309
Met Asp Asp Val  Val Asp Ala Asp Glu  Tyr Leu Ile Pro Gln  Gln
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ggc ttc ttc agc  agc ccc tcc acg tca  cgg act ccc ctc ctg  agc          3354
Gly Phe Phe Ser  Ser Pro Ser Thr Ser  Arg Thr Pro Leu Leu  Ser
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Ser Leu Ser Ala  Thr Ser Asn Asn Ser  Thr Val Ala Cys Ile  Asp
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Arg Asn Gly Leu  Gln Ser Cys Pro Ile  Lys Glu Asp Ser Phe  Leu
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Gln Arg Tyr Ser  Ser Asp Pro Thr Gly  Ala Leu Thr Glu Asp  Ser
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gtt ccc aaa agg  ccc gct ggc tct gtg  cag aat cct gtc tat  cac          3579
Val Pro Lys Arg  Pro Ala Gly Ser Val  Gln Asn Pro Val Tyr  His
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Asp Pro His Ser  Thr Ala Val Gly Asn  Pro Glu Tyr Leu Asn  Thr
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Val Gln Pro Thr  Cys Val Asn Ser Thr  Phe Asp Ser Pro Ala  His
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Trp Ala Gln Lys  Gly Ser His Gln Ile  Ser Leu Asp Asn Pro  Asp
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tac cag cag gac  ttc ttt ccc aag gaa  gcc aag cca aat ggc  atc          3804
Tyr Gln Gln Asp  Phe Phe Pro Lys Glu  Ala Lys Pro Asn Gly  Ile
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